

REMARKS/ARGUMENTS

In the most recent Office Action, the Examiner rejected claims 54-59 as unpatentable over the Dubin patent or the Poris patent in view of the Lowenheim text and the Ameen patent. As the Examiner knows, claim 54 of the present application has been copied verbatim from U.S. Patent No. 6,074,544 by way of an earlier amendment in this application, and has been presented along with a request that the PTO declare an interference between the present application and the '544 patent.

The Examiner will note that Semitool, when it presented its Request for Reexamination of the '544 patent, indicated that it believes that the claims of this application and the Novellus '544 patent are patentable over the prior art cited in Semitool's request. Semitool does not believe that the prior art cited by the Examiner in this application (and in the Request for Reexamination) fairly renders obvious the subject matter of the claims.

Semitool continues to believe that the prior art cited by the Examiner does not fairly suggest the subject matter claimed within the meaning of § 103, and therefore continues to traverse the rejection of claims 54-59. The Dubin patent describes a conventional copper electrolytic plating process used in the manufacture of semiconductor devices. There is no suggestion in the Dubin patent that the electrolytic deposition process should be carried out in two stages, one with a low current density to initiate the plating operation and the second with a higher current density to completely fill trenches and holes on the surface of the wafer. The Poris

patent is essentially the same. Like Dubin, Poris fails to teach the step of increasing the current flow to increase the current density.

The Examiner relies on the secondary references, namely the Lowenheim text and the Ameen patent for teaching of the concept of low current density initiation followed by higher current density for the bulk plating. The Lowenheim text is a general textbook, and is concerned with such plating operations as depositing an electrically conductive film onto a nonconductive surface such as plastic. The Ameen patent is similar, teaching a method for metallizing polymeric films by electrodeposition.

Lacking from the prior art is any suggestion to combine the teachings of the Lowenheim text and the Ameen patent with the teachings of Dubin and Poris. Quite the contrary, techniques employed in the electroplating of plastics represent an entirely different line of endeavor as compared to depositing copper films on semiconductor wafers. There is simply no similarity in the substrates or the respective problems that those substrates raise to those skilled in the art. No one skilled in the art would be led by the teachings of either the Lowenheim text or the Ameen patent to modify the methods disclosed by either Dubin or Poris in electroplating semiconductor wafers. In sum, the secondary references to Lowenheim and Ameen are simply not relevant to Dubin and Poris, and therefore the Examiner's rejection as set forth in this application represent a hindsight reconstruction of the subject matter claimed in this application.

Furthermore, the independent claims 54, 57, 58 and 59 all define conditions after which a higher current density is applied. Claims 54 and 58 define that condition as "after a combined thickness of the seed and plated layers has reached a predetermined value" and claims 57 and 59 define that condition as "after a predetermined time". None of the references disclose or suggest any such conditions for when the higher current density is applied.

In sum, the prior art simply fails to provide any suggestion to modify the primary references in light of the teachings of the secondary references and the Examiner has failed to precisely define any such teachings. Therefore, the rejection of the claims is entirely unwarranted.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw his rejection in this application, allow claims 54-59 and declare the interference.

In addition, Applicants wish to bring to the Examiner's attention the fact that, even though a change of address for the undersigned was filed and recorded in the Patent Office in 2003 (see attached), mail is still being sent to a former law firm. Applicants' request correction of the correspondence address for the undersigned and this file in the PTO's records.

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Respectfully submitted,



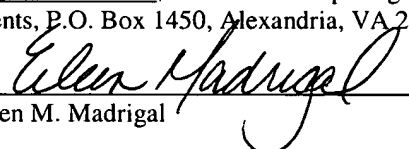
Keith V. Rockey
Registration No. 24,713

Wallenstein Wagner & Rockey, Ltd.
311 South Wacker Drive, 53rd Floor
Chicago, Illinois 60603

September 21, 2005

CERTIFICATE OF MAILING (37 C.F.R. § 1.10)

I hereby certify that this correspondence is, on the date shown below, being deposited with the United States Postal Service United States Postal Service as Express Mail Post Office to Addressee, No. EL 927638255 US, with sufficient postage, under 37 C.F.R. § 1.10 and addressed to: Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on September 21, 2005.


Eileen M. Madrigal